Energy & Environment Directorate Publications

(January 1 through December 31, 2003)

Peer-Reviewed and Published

Advances in Water Resources

- 1. Maxwell, R.M., C. Welty and A.F.B. Tompson (2003), "Streamline-Based Simulation of Virus Transport Resulting from Long Term Artificial Recharge in a Heterogeneous Aquifer," *Advances in Water Resources*, **26**: 1075–1096, UCRL-JC-145275.
- 2. Tompson, A.F.B., V. Rumynin, R. Kanivetsky and C.-F. Tsang (2003), "In Memory of Valery Mironenko (1935-2000)," *Advances in Water Resources*, **23**(7): 673–675, UCRL-JC-152093.

American Mineralogist

3. Putirka, K.D., H. Mikaelian, F. Ryerson and H. Shaw (2003), "New Clinopyroxene-Liquid Thermobarometers for Maric, Evolved, and Volatile-Bearing Lava Compositions, with Applications to Lavas from Tibet and the Snake River Plain, Idaho," *American Mineralogist*, **88**(10): 1542–1554.

Analytical Chemistry

- 4. Chiarappa-Zucca, M.L., K.H. Dingley, M.L. Roberts, C. Velsko and A.H. Love (2003), "Sample Preparation for Quantitation of Tritium by Accelerator Mass Spectrometry," *Analytical Chemistry*, **74**(24): 6285–6290, UCRL-JC-148175.
- 5. Grant, P.G., M. Palmblad, S. Murov, D.J. Hillegonds, D.L. Ueda, J.S. Vogel and G. Bench (2003), "Alpha Particle Energy Loss Measurement of Microgram Depositions of Biomolecules," *Analytical Chemistry*, **75**: 4519–4524, UCRL-JC-152090.
- 6. Ognibene, T.J., G. Bench, J.S. Vogel, G.F. Peaslee and S. Murov (2003), "A High-Throughput Method for the Conversion of CO₂ Obtained from Biochemical Samples to Graphite in Septa-Sealed Vials for Quantification of ¹⁴C via Accelerator Mass Spectrometry," *Analytical Chemistry*, **75**: 2192–2196, UCRL-JC-242557.
- 7. Steele, P., H. Tobias, D. Fergenson, P. Maurice, J. Horn, G. Czerwieniec, S. Russell, C. Lebrilla, E. Gard and M. Frank (2003), "Laser Power Dependence of Mass Spectral Signatures from Individual Bacterial Spores in Bioaerosol Mass Spectrometry," *Analytical Chemistry*, **75**: 5480–5487, UCRL-JC-153095.

Atmospheric Environment

- 8. Loosmore, G.A. (2003), "Evaluation and Development of Models for Resuspension of Aerosols at Short Times after Deposition," *Atmospheric Environment*, **37**: 639–647, UCRL-JC-149580.
- 9. Loosmore, G.A., and R.T. Cederwall (2003), "Precipitation Scavenging for Emergency Response Applications: Testing an Updated Model with New Real Time Data," *Atmospheric Environment*, **38**: 993–1003, UCRL-JC-155010.

Biomaterials

10. Bearinger, J.P., C.A. Orme and J.L. Gilbert (2003), "In Situ Imaging and Impedance Measurements of Titanium Surfaces Using AFM and SPIS," *Biomaterials*, **24**: 1837–1852.

Boreas

11. Owen, L.A., J.Q. Spencer, H.Z. Ma, P.L. Barnard, E. Derbyshire, R.C. Finkel, M.W. Caffee and Z.Y. Nian (2003), "Timing of Late Quaternary Glaciation along the Southwestern Slopes of the Qilian Shan, Tibet," *Boreas*, **32**(2): 281–291.

Bulletin of the Seismological Society of America

12. Mayeda, K., A. Hofstetter, J.L. O'Boyle and W.R. Walter (2003), "Stable and Transportable Regional Coda Magnitudes Based on Coda-Derived Moment Rate Spectra," *Bulletin of the Seismological Society of America*, **93**, 224–239.

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13. Marchetti, A.A., M.G. Kinze, M.L. Chiarappa-Zucca, R.J. Pletcher and D.W. Layton (2003), "Biodegradation of Potential Diesel Oxygenate Additives: Dibutyl Maleate (DMB), and Tripropylene Glycol Methyl Ether (TGME)," *Chemosphere*, **52**: 861–868, UCRL-JC-148509.

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14. Glassley, W.E., J.J. Nitao, C.W. Grant, J.W. Johnson, C.I. Steefel and J.R. Kercher (2003), "Impact of Climate Change on Vadose Zone Pore Waters and Its Implication for Long Term Monitoring," *Computers and Geosciences*, **29**: 399–411, UCRL-JC-147903.

DOE This Month

15. Hamilton, T.F. and J. Knezovich (2003), "Advances in Low-Level Detection of Plutonium at LLNL," *DOE This Month*, **October 2003**: 10, UCRL-MI-155560.

Environmental Science and Technology

16. Love, A.H., J.R. Hunt and J.P. Knezovich (2003), "Use of Carbon-14 and Tritium in Tree Rings to Reconstruct Tritium Exposure at Lawrence Berkeley National Laboratory," *Environmental Science and Technology*, **37**(19): 4330, UCRL-JC-152593.

Geochimica et Cosmochimica Acta

17. Riebe, C.S., J.W. Kirchner and R.C. Finkel (2003), "Long-Term Rates of Chemical Weathering and Physical Erosion from Cosmogenic Nuclides and Geochemical Mass Balance," *Geochimica et Cosmochimica Acta*, **67**(22): 4411–4427, UCRL-JC-151697.

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- 18. Owen, L.A., R.C. Finkel, M.W. Caffee and L. Guatltieri (2003), "Timing of Multiple Late Quaternary Glaciations in the Hunza Valley, Karakoram Mountains, Northern Pakistan: Defined by Cosmogenic Radionuclide Dating of Moraines," *Geological Society of America Bulletin*, **115**(11): 1356–1364, UCRL-JC-15448.
- 19. Owen, L.A., R.C. Finkel, M. Haizhou, J.Q. Spencer, E. Derbyshire, P.L. Barnard and M.W. Caffee (2003), "Timing and Style of Late Quaternary Glaciation in NE Tibet," *Geological Society of America Bulletin*, **115**(11): 1356–1364, UCRL-JC-151690.

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- 20. Finkel, R.C., L.A. Owen, P.L. Barnard and M.W. Caffee (2003), "Beryllium-10 Dating of Mount Everest Moraines Indicates a Strong Monsoonal Influence and Glacial Synchroneity throughout the Himalaya," *Geology*, **31**(6): 561–564, UCRL-JC-151786.
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- 22. Perg, L.A., R.S. Anderson and R.C. Finkel (2003), "Use of Cosmogenic Radionuclides as a Sediment. Tracer in the Santa Cruz Littoral Cell, California, USA," *Geology*, **31**(4): 299–302, UCRL-JC-151696.

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- 23. Berryman, J.G., C.Y. Wang, D. Drger and D. Mayeri (2003), "Coseismic Ground Motion, Water-Level Change and Liquefaction in Sedimentary Basins—Field-Based Relations from the 1999 Chi-Chi (Mw=7.5) Earthquake, Taiwan," *Geophysical Research Letters*, **30**: 1890–1892, UCRL-JC-152339.
- 24. Detwiler, R.L., W.L. Bourcier and R.J. Glass (2003), "Experimental Observations of Fracture Dissolution: The Role of Peclet Number on Evolving Aperture Variability," *Geophysical Research Letters*, **30**(12): 1648, UCRL-JC-152524.
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- 26. Finkel, R.J., W.S. Moore, T.L. Liu, W.S. Broecker and A. Wright (2003), "Factors Influencing ⁷Be Accumulation on Rock Varnish," *Geophysical Research Letters*, **28**(23): 4475–4478, UCRL-JC-146881.
- 27. Friddell, J.E., R.C. Thunell, T.P. Guilderson and M. Kashgarian (2003), "Increased Northeast Pacific Climate Variability During the Warm Middle Holocene," *Geophysical Research Letters*, **30**(11): 14-11 to 14-14, UCRL-JC-152438.
- 28. Park, S.K., and J.J. Roberts (2003), "Conductivity Structure of the San Andreas Fault, Parkfield, Revisited," *Geophysical Research Letters*, **30**(16), 1842.
- 29. Vincent, P., S.C. Larsen, D. Galloway, R. Laczniak, W. Walter, W. Foxall and J.J. Zucca (2003), "New Signatures of Underground Nuclear Tests Revealed by Satellite Radar Interferometry," *Geophysical Research Letters*, **30**: 2141–2144, UCRL-JC-145562.

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- 30. Schuster, G.T., F. Followill, L.J. Katz, J. Yu, and Z. Liu (2003), "Autocorrelogram Migration: Theory," *Geophysics*, **68**: 1685–1694.
- 31. Yu, J., L.J. Katz, F. Followill, H. Sun, and G.T. Schuster (2003), "Autocorrelogram Migration: IVSPWD Test," *Geophysics*, **68**: 297–307.

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- 33. Govindasamy, B., K. Caldeira and P. Duffy (2003), "Geoengineering Earth's Radiation Balance to Mitigate Climate Change from a Quadrupling of CO₂," *Global and Planetary Change*, **37**: 157–168, UCRL-JC-140243.

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34. Aceves, S. and V. Sahai (2003), "Determination of Heat Transfer During Gear Blank Quenching," *Heat Transfer Engineering*, **22**(4): 56–66, UCRL-JC-153652.

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Journal of Chemical and Engineering Data

37. Rard, J.A., D.A. Palmer and J.G. Albright (2003), "Isopiestic Determination of the Osmotic and Activity Coefficients of Aqueous Sodium Trifluoromethanesulfonate at 298.15 K and 323.15 K, and Representation with an Extended Ion-Interaction (Pitzer) Model," *Journal of Chemical and Engineering Data*, **48**(1): 158–166, UCRL-JC-148977.

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- 38. Rard, J.A., S.L. Clegg and R.F. Platford (2003), "Thermodynamics of {zNaCl + (1-z)Na₂SO₄}(aq) from T = 278.15 K to T = 313.15 K, and Representation with an Extended Ion-Interaction (Pitzer) Model," *Journal of Chemical Thermodynamics*, **35**(6): 967–1008, UCRL-JC-151013.
- 39. Rard, J.A. and A.M. Wijesinghe (2003), "Conversion of Parameters Between Different Variants of Pitzer's Ion-Interaction Model, Both With and Without Ionic Strength Dependent Higher-Order Term," *Journal of Chemical Thermodynamics*, **35**(3): 439–473, UCRL-JC-149636.

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- 40. Buscheck, T.A., L.G. Glascoe, K.H. Lee, J. Gansemer, Y. Sun and K. Mansoor (2003), "Validation of the Multiscale Thermohydrologic Model Used for Analysis of a Proposed Repository at Yucca Mountain," *Journal of Contaminant Hydrology*, **62–63**: 421–440, UCRL-JC-148018.
- 41. Buscheck, T.A., N. Rosenberg, J. Blink, Y. Sun and J. Gansemer (2003), "Analysis of Thermohydrologic Behavior for Above-Boiling and Below-Boiling Thermal-Operating Modes for a Repository at Yucca Mountain," *Journal of Contaminant Hydrology*, **62–63**: 441–457, UCRL-JC-145280.
- 42. Glassley, W.E., J.J. Nitao and C.W. Grant (2003), "Fully Coupled Simulations of Thermohydrology and Geochemistry at Yucca Mountain: An Application Using Massively Parallel Computational Models," *Journal of Contaminant Hydrology*, **62–63**: 495–507, UCRL-JC-15376.
- 43. Jolley, D.M., T.F. Ehrhorn and J. Horn (2003), "Microbial Impacts to the Near-Field Environment Geochemistry: A Model for Estimating Microbial Communities in Repository Drifts at Yucca Mountain," *Journal of Contaminant Hydrology*, **62–63**: 553–575.
- 44. Steefel, C.I., S.A. Carroll, P. Zhao and S.K. Roberts (2003), "Cesium Migration in Hanford Sediment: A Multi-Site Cation Exchange Model Based on Laboratory Transport Experiments," *Journal of Contaminant Hydrology*, **67**: 219–246, UCRL-JC-151867.
- 45. Sun, Y. and T.A. Buscheck (2003), "Analytical Solutions for Reactive Transport of N-Member Radionuclide Chains in a Single Fracture," *Journal of Contaminant Hydrology*, **62–63**: 695–712, UCRL-JC-148670.

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- 46. Bertete-Aguirre, H., P.A. Berge, and J.J. Roberts (2003), "Using Laboratory Measurements of Electrical and Mechanical Properties to Assist Interpretation of Field Data from Shallow Geophysical Measurements," *Journal of Environmental and Engineering Geophysics*, **8**, 23–29.
- 47. Ramirez, A.L. and W.D. Dailey (2003), "Monitoring Carbon Dioxide Floods Using Electrical Resistance Tomography (ERT): Sensitivity Studies," *Journal of Environmental and Engineering Geophysics*, **8**(3): 187–208, UCRL-JC-150548.

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- 51. Berryman, J.G., S.R. Pride and J.M. Harris (2003), "Seismic Attenuation Due to Wave-Induced Flow," *Journal of Geophysical Research*, **109**(B01201), UCRL-JC-153978.
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Nature

- 69. Caldeira, K. and M. Wickett (2003), "Anthropogenic Carbon and Ocean pH," *Nature*, **425**: 325, UCRL-JC-143232 R1.
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- 75. Pasyanos, M.E., W.R. Walter, M.P. Flanagan, P. Goldstein, and J. Bhattacharyya, "Building and Testing an *A Priori* Geophysical Model for Western Eurasia and North Africa," *Pure and Applied Geophysics*, in press (2003).

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- 90. Atkins-Duffin, C.E., and Baisden, P.A., "Radioactive Waste Management," in *Handbook of Nuclear Chemistry*, G.L. Molnar, Editor. 2004, Kluwer Press, in press.
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